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ATTACHMENT A
Remarks

Claims 1-3 and 5-7 stand pending in the present application. By this Amendment, Applicants have amended claims 1-3, canceled claim 4 and added new claims 5-7. Applicants respectfully submit that the present application is in condition for allowance based on the discussion which follows.

Claims 1-4 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. By this Amendment, Applicants have amended claims 1-3 from method claims to apparatus claims, canceled apparatus claim 4 and added new method claims 5-7 based on previously presented method claims 1-3.

Applicants respectfully submit that claims 1-3 as amended are in compliance with 35 U.S.C. § 112, first paragraph. In addition, Applicants respectfully submit that new method claims 5-7 are also in compliance with § 112, first paragraph.

With regard to new claims 5-7, these claims recite specific method steps which satisfy the enablement requirement under 35 U.S.C. § 112, first paragraph. Further, in response to the Examiner's query into how the previously recited method is optimized to accommodate different ice cream mixtures, the presently claimed method processes measured temperature values and electric power values to optimize the temperature of the refrigerant in a freezing circuit. Depending on the ice cream mixture, for example its ingredients, its volume and the amount of air contained therein, the temperature of the freezing cylinder will vary and the load, i.e., power consumed by the electric motor, will also vary. The present method therefore, uses the measured values which correspond to the ice cream mixture contained within the freezing cylinder to optimize the temperature of the refrigerant. Thus, the method is optimized to accommodate different ice cream mixtures.

Claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Manfroni in view of Howell et al (hereinafter "Howell") and Baker et al (hereinafter "Baker"). The Examiner alleges that Manfroni discloses an ice cream maker which uses a solenoid valve to introduce hot gases from a compressor into an evaporator when necessary. The Examiner admits that Manfroni does not disclose a power detector or temperature sensors. However the Examiner attempts to make up the deficiencies of Manfroni by alleging that Howell teaches an ice cream maker which includes means for detecting the power consumption of an electric drive motor. Further, the Examiner alleges that Baker teaches a refrigeration system which uses a temperature sensor for sensing the temperature values at an inlet and an outlet of an evaporator. The Examiner then alleges that it would have been obvious to take Manfroni and add sensors of Howell and Baker.

Contrary to the Examiner's allegation the present invention is not obvious from Manfroni in view of Howell and Baker. It would not have been obvious to one of ordinary skill in the art to combine these three references together to make the present invention obvious as there fails to be any teaching, suggestion or motivation to combine these references as alleged.

The present invention is directed to a novel and non-obvious apparatus and method in which a quantity of hot gas is injected into the flow of cold gas in order to modify the temperature of the freezing gas thereby modifying the consistency of ice cream being produced. The apparatus uses a series of valves and sensors to regulate the hot gas flow to produce a desired temperature.

Further, the electric power values and temperature sensors values relate to the type of ice cream being formed. For example, depending on the consistency, amount of air, mixture contents and volume of the ice cream, the load on the electric motor will vary and thus the corresponding power value detected. Similarly, the temperature of the ice cream will vary depending on processing conditions, and the type and volume of ice cream being produced. Thus, by monitoring these values, an amount of hot gas is injected into the flow of cold gas to produce a varied temperature of the freezing gas. Accordingly, the ice cream production is optimized. One feature of the present invention is the ability to accommodate different types of ice cream with different quantities of air and heat capacity by using a combination of a temperature sensor and electric load sensor.

It would not have been obvious to one of ordinary skill in the art to take the disclosure of Manfroni and combine it with Howell and Baker to make the present invention obvious. All three references relate to three very different problems in the art and accordingly are directed to three different solutions to those problems. Manfroni is concerned with addressing the problem of potential microbial contamination by using a pasteurizing method in which liquid ice cream inside an ice cream maker is pasteurized. Manfroni uses an inverted freezing cycle in which hot gas is circulated through the evaporator of the ice cream machine in order to heat the liquid ice cream mix in the order of 80-85°C to sterilize the mixture. Howell discloses an ice cream machine with an over-run control thus controlling the amount of air introduced into the mixture. Baker discloses a refrigeration module which includes temperature sensors.

It would not have been obvious to one of ordinary skill in the art wishing to produce an ice cream machine with temperature control over the freezing cylinder in which hot gas is circulated through an evaporator using both values of a temperature sensor and the load on an electric motor. Absent impermissive hindsight, one of ordinary skill in the art would not combine these three dissimilar disclosures to make the present invention obvious.

Moreover, the references fail to provide any motivation for one of ordinary skill in the art to combine these three references to make the present invention obvious. One of ordinary skill in the art would not be motivated to take the temperature sensor from the refrigeration module of Baker, and the load sensor of Howell used to control the over-run in an ice mixture and combine them with a sterilization method of Manfroni to make the present apparatus and method which is designed to accommodate different types of ice cream, obvious.

Based on the foregoing discussion, Applicants respectfully submit that claims 1-3 and new claims 5-7 are not obvious in view of the prior art cited.

In view of the foregoing, Applicants respectfully submit that the present application is in condition for allowance.

END REMARKS